Climate Change and Human Health Literature Portal

National Institute of
Environmental Health Sciences

Spatial trend, environmental and socioeconomic factors associated with malaria prevalence in Chennai

Abstract:

Background: Urban malaria is considered to be one of the most significant infectious diseases due to varied socioeconomic problems especially in tropical countries like India. Among the south Indian cities, Chennai is endemic for malaria. The present study aimed to identify the hot spots of malaria prevalence and the relationship with other factors in Chennai during 2005-2011. Methods. Data on zone-wise and ward-wise monthly malaria positive cases were collected from the Vector Control Office, Chennai Corporation, for the year 2005 to 2011 and verified using field data. This data was used to calculate the prevalence among thousand people. Hotspot analysis for all the years in the study period was done to observe the spatial trend. Association of environmental factors like altitude, population density and climatic variables was assessed using ArcGIS 9.3 version and SPSS 11.5. Pearson's correlation of climate parameters at 95% and 99% was considered to be the most significant. Social parameters of the highly malaria prone region were evaluated through a structured random questionnaire field survey. Results: Among the ten zones of Chennai Corporation, Basin Bridge zone showed high malaria prevalence during the study period. The 'hotspot' analysis of malaria prevalence showed the emergence of newer hotspots in the Adyar zone. These hotspots of high prevalence are places of moderately populated and moderately elevated areas. The prevalence of malaria in Chennai could be due to rainfall and temperature, as there is a significant correlation with monthly rainfall and one month lag of monthly mean temperature. Further it has been observed that the socioeconomic status of people in the malaria hotspot regions and unhygienic living conditions were likely to aggravate the malaria problem. Conclusion: Malaria hotspots will be the best method to use for targeting malaria control activities. Proper awareness and periodical monitoring of malaria is one of the quintessential steps to control this infectious disease. It has been argued that identifying the key environmental conditions favourable for the occurrence and spread of malaria must be integrated and documented to aid future predictions of malaria in Chennai.

Source: http://dx.doi.org/10.1186/1475-2875-13-14

Resource Description

Exposure : ⊠

weather or climate related pathway by which climate change affects health

Meteorological Factors, Precipitation, Temperature

Temperature: Fluctuations

Geographic Feature: ⊠

☐

resource focuses on specific type of geography

 Ocean/Coastal, Urban

Geographic Location: ☒

resource focuses on specific location

 Non-United States

Non-United States: Asia

Asian Region/Country: India

Health Impact: ☒

specification of health effect or disease related to climate change exposure

 Infectious Disease

Infectious Disease: Vectorborne Disease

Vectorborne Disease: Mosquito-borne Disease

Mosquito-borne Disease: Malaria

Population of Concern: A focus of content

Population of Concern: ☒

populations at particular risk or vulnerability to climate change impacts

 Low Socioeconomic Status

Resource Type: ☒

format or standard characteristic of resource

 Research Article

Timescale: ☒

time period studied

 Time Scale Unspecified